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Issues in the Management of Marine Mammals in the Northwest Territories and Yukon North Slope

G.C.B. Yaremchuk and B. Wong

Central and Arctic Region
Department of Fisheries and Oceans
Winnipeg, Manitoba R3T 2N6

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ISSUES IN THE MANAGEMENT OF MARINE MAMMALS IN THE NORTHWEST TERRITORIES AND YUKON NORTH SLOPE

by

G.C.B. Yaremchuk and B. Wong

Department of Fisheries and Oceans
Central and Arctic Region
Winnipeg, Manitoba R3T 2N6

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ABSTRACT

Yaremchuk, G.C.B., and B. Wong. 1989. Issues in the management of marine mammals in the Northwest Territories and Yukon North Slope. Can. Manuscr. Rep. Fish. Aquat. Sci. 2009: v + 10 p.

The Department of Fisheries and Oceans' (DFO) regulation of the harvesting of marine mammals in the Northwest Territories and Yukon North Slope is reviewed in light of the needs and desires of harvesters, past DFO policy statements, international opinion and conservation requirements. Harvesting of marine mammals in the NWT has been done by the indigenous peoples primarily to obtain food and to maintain their culture. Regulations under the Fisheries Act restrict or prohibit the sale of many marine mammal products. Priority is given to native subsistence harvesters when allocating the resource. Recently, there has been growing pressure to allow sale of products between native communities and to non-natives. Non-natives also are interested in harvesting. International public opinion is generally supportive of aboriginal subsistence harvesting but there is significant resistance to commercial or sport hunting.

Diversification of the purpose and community membership of harvesters must be accompanied by strengthening of the management regime. Safe harvesting levels should be established for all harvested stocks. Regulatory quotas should be set only if there is local support or if the harvest may exceed the safe harvesting level, and then only after consultation. A more formal method of allocating the right to harvest should be discussed with clients. The wastage sections of the beluga, narwhal and walrus protection regulations may be removed where a formal allocation system has been established. The purpose of the hunt should be considered during the allocational process. DFO should develop a plan of research to support the development of stock management plans. All marine mammal harvests should be monitored in cooperation with local resource harvester organizations. DFO should consider requiring the keeping of records on the trading of marine mammal products or the identification of these products as to source for all species. Management boards consisting of representatives of all concerned communities of interest should be established. These boards should develop and recommend stock management plans.

DFO should increase education and consultation programs in order to acquaint resource users with the basis on which safe harvesting levels are set and to promote the use of quotas and licence systems as management tools.

Canada should continue to present status reports on harvested species to international bodies and should seek bilateral agreements with the United States of America and Denmark on the management of commonly exploited stocks.

Key words: native subsistence; marine mammals; harvesting; allocation; co-management.

RÉSUMÉ

Yaremchuk, G.C.B., and B. Wong. 1989. Issues in the management of marine mammals in the Northwest Territories and Yukon North Slope. Can. Manuscr. Rep. Fish. Aquat. Sci. 2009: v + 10 p.

La réglementation, par le ministère des Pêches et des Océans (PO), de la récolte de mammifères marins dans les Territoires du Nord-Ouest et sur le Versant Nord du Yukon est examinée à la lumière des besoins et des aspirations des chasseurs, des énoncés de politique antérieurs du Ministère, de l'opinion internationale et des exigences de conservation. Les autochtones des Territoires du Nord-Ouest ont toujours chassé les mammifères marins pour assurer leur subsistance et perpétuer leur mode de vie. Les règlements prévus par la Loi sur les pêcheries limitent ou interdisent la vente des produits de bon nombre d'espèces de mammifères marins. On accorde la priorité à la chasse autochtone familiale lors de la répartition des ressources. Récemment, on a exercé des pressions croissantes visant à permettre la vente de produits entre les communautés autochtones et les non-autochtones. Ces derniers souhaitent également chasser eux-mêmes les mammifères marins. L'opinion publique internationale est généralement favorable à la chasse autochtone familiale, mais s'oppose sensiblement aux activités de chasse commerciale et sportive.

La diversité des objectifs et des communautés de chasseurs doit s'accompagner du renforcement du régime de gestion. On doit établir, pour tous les stocks exploités, des niveaux de récolte qui ne mettent pas les espèces en péril. Des quotas réglementaires ne devraient être fixés, qu'avec l'appui des communautés locales, ou, si l'on croit que la récolte peut excéder un niveau de récolte sans danger pour les espèces, et, encore, seulement après consultation des intéressés. Une méthode plus officielle d'attribution du droit de chasse doit être examinée avec les clients. Les articles relatifs au gaspillage, prévus par les règlements sur la protection du bélouga, du narval et du morse, peuvent être éliminés lorsqu'un système officiel de répartition a été établi. Il faut prendre en considération l'objectif de la chasse lors du processus de répartition. PO devrait créer un programme de recherche afin de faciliter l'établissement de plans de gestion des stocks. Toutes les récoltes de mammifères marins doivent être surveillées en coopération avec les organisations locales d'exploitation des ressources. Le ministère devrait étudier la possibilité d'exiger l'enregistrement des transactions relatives aux produits de mammifères marins ou l'identification de la source de ces produits pour toutes les espèces. On devrait créer des commissions de gestion constituées de représentants de toutes les parties intéressées et chargées d'élaborer et de recommander des programmes de gestion des stocks.

PO devrait étendre ses programmes de sensibilisation et de consultation pour expliquer aux utilisateurs des ressources comment les niveaux de récolte sont établis, et promouvoir le recours aux quotas et aux permis comme outils de gestion.

Le Canada doit continuer de produire des rapports sur le statut des espèces exploitées à l'intention des organismes internationaux et s'efforcer de conclure avec les États-Unis et le Danemark des ententes bilatérales relatives à la gestion des espèces couramment exploitées.

Mots-clés: subsistance des autochtones; mammifères marins; récolte; répartition; co-gestion.

PURPOSE

The purpose of this paper is to examine the Department of Fisheries and Oceans' programs, policies and regulations relating to the management and harvesting of marine mammals within the Northwest Territories (NWT) and Yukon North Slope. The review will consider the desires of present and potential harvesters, regulations and policy on marine mammal harvesting, government policy on commercial whaling, international opinion, policy and standards for the harvesting and management of marine mammals, the status of the harvested stocks, the basis for existing quotas, potential effects on conservation and management, and constraints imposed by aboriginal land claims. The paper does not discuss the management of marine mammal stocks in territorial waters adjacent to Northern Quebec.

BACKGROUND AND PRESENT STATUS

NATURE AND EXTENT OF THE MARINE MAMMAL HARVEST IN THE NWT AND YUKON NORTH SLOPE

Beluga (Delphinapterus leucas), narwhal (Monodon monoceros), bowhead whale (Balaena mysticetus), walrus (Odobenus rosmarus) and seals occur in the Eastern Arctic and Hudson Bay. Beluga, bowhead whale and seals also occur in the Western Arctic (Davis et al. 1980). The exploitation of marine mammals always has been a dominant human activity in the Canadian Arctic. Commercial whaling, which began about 1600 and continued until 1969, had a major effect on whales (Mitchell and Reeves 1981, Bockstoce and Botkin 1983). Bowhead was the main quarry although there was some harvesting of beluga, narwhal, walrus, and seals. Now, all stocks of these species are harvested in Canadian domestic fisheries except for the bowhead whale which is recognized as an endangered species (Davis et al. 1980). The western bowhead stock supports a harvest by the Inupiat of Alaska. The Beaufort Sea beluga stock supports harvests by both the Inupiat and the Inuvialuit of Canada. In the east, Inuit from Canada and Greenland almost certainly both harvest common stocks of beluga, narwhal and walrus. In 1984/85 about 500 beluga, 300 narwhal, 400 walrus, 37 000 ringed seal, 2 000 harp seal and 2 000 other seals were taken in the NWT (DFO unpublished data).

As a result of commercial whaling, the bowhead stocks and the eastern Hudson Bay, Ungava Bay and south-east Baffin beluga stocks are reduced in numbers. The walrus is reduced in range and probably numbers and the harbour seal is reduced in range and numbers. In contrast, no evidence exists that harvesting has affected the numbers or range of other beluga stocks, narwhal stocks or other species of seals, nor is there evidence that these stocks and species are being harvested at levels which cannot be sustained (Davis et al. 1980).

Arctic marine mammals are harvested almost exclusively by the indigenous peoples of the Arctic. The fishery provides these people with food and maintains their hunting culture. However, in addition to these traditional attributes the harvest also is taking on more characteristics of a commercial or recreational harvest activity. The Inuit are interested in selling marine mammal products amongst their settlements (inter-settlement trade) and to non-natives. Also, an increasing number of non-natives are becoming interested in either subsistence or recreational harvesting of marine mammals. These interests raise serious policy, political, conservation and allocational issues at both the national and international level.

MANAGEMENT OF MARINE MAMMALS IN THE NWT AND YUKON NORTH SLOPE

Canada's policy on renewable marine resources, including whales, was expressed in a statement issued in 1980 as a policy of stock-by-stock management which allows harvesting where population levels permit, and strict limitations on harvesting, including moratoria where appropriate, when rebuilding of a particular stock is required (DFO 1980). This policy was reflected in Canada's position at the 1980 meeting of the International Whaling Commission (IWC), the international agency for the management of large cetaceans. At the meeting, Canada voted against a blanket moratorium on commercial whaling but did support cessation of whaling for stocks that were below the maximum sustainable yield level or were threatened, including cessation of the Alaskan subsistence hunt for bowhead whales. This strong support for commercial harvesting of marine mammals has been maintained throughout the international controversy over the harvesting of harp seals off the Atlantic coast. This position has been obscured by the closure in 1972 of all Canadian commercial whaling. Although the closure presumably was due to the depletion of all commercially harvested stocks, the impression was left that Canada opposed all commercial whaling. Further, it was unclear whether the continuance of Inuit aboriginal harvest of beluga and narwhal was due to the good health of the stocks being utilized or was a special dispensation based on the aboriginal subsistence nature of the hunt.

Management efforts are aimed at establishing and enforcing safe harvesting levels (SHL) which are within the current productive capacities of stocks (replacement yields). Effort has been directed into aerial surveys of areas known to support high densities of animals in order to obtain the highest possible minimum population estimate at the lowest cost. Estimates of gross and in some cases net reproductive rates and of natural mortality rates for harvested and related species, generally obtained from the literature, are applied to these population estimates to obtain estimates of replacement yields. Usually, the lower confidence limit of the population estimate, another conservative measure, is used when calculating these yields.

Regulatory quotas for marine mammal stocks have been established in the NWT only when there is reason to believe that a stock is declining. Quotas generally have been set at or near historical subsistence harvest levels on the assumption that the stocks have remained stable at these levels of harvest. The coincidence of

quotas with historical harvest levels has convinced many natives that quotas are based on the current needs of the harvesters rather than on the productive capacities of stocks. Although Canada's policy on marine mammal harvesting provides for limitations on harvesting in order to permit rebuilding of stocks, there are no management guidelines as to when this is required and how the interests of existing fisheries, particularly aboriginal subsistence fisheries, are to be balanced against the need for rebuilding when setting harvest levels.

In allocating fishery resources it is the Canadian Government's policy to give first priority to aboriginal subsistence fisheries in order to ensure the maintenance of aboriginal culture. The priority given to natives in the allocation of marine mammal resources in the NWT is not wholly dependent upon the aboriginal subsistence nature of the harvest. Natives also would receive priority over other applicants for other categories of use due to their long history as virtually exclusive users of the resource.

Many NWT native communities regard themselves as exclusive users of marine mammal resources and have regulated their own hunt in order to achieve a safe level of harvest. No formal allocation is made of rights to harvest marine mammals from stocks for which a quota has not been set. Natives harvest these stocks without restriction. Where quotas have been set for beluga stocks, the entire harvest usually is presumed to be allocated to natives. Narwhal tags are allocated to communities on the advice of regional hunter and trapper associations (HTA) and assigned to individuals by community hunter and trapper organizations.

Regulations provide for the licensing of non-natives to harvest all marine mammals except narwhal. To date, there have been few applications under these provisions and no formal allocation system has been necessary to protect the priority given to the existing native subsistence fishery.

The sale of beluga, narwhal, walrus and seal meat, muktuk and blubber is currently restricted or prohibited. DFO support for intersettlement trade was first enunciated in a February 1974 memo from the Senior Assistant Deputy Minister. The basis for the support was that intersettlement trade of marine mammal products fell within aboriginal subsistence harvesting and that the harvested stocks could sustain the trade. DFO later issued a more comprehensive policy statement on intersettlement trade of marine mammal products under the Economic Development Agreement (DFO 1983). Intersettlement trade of marine mammal products originating with subsistence harvests was supported and a quota or Total Allowable Catch was established for the stock from which the animals were obtained prior to the commencement of trade. The statement suggests that the practice not be legalized through alteration of regulations prohibiting or restricting sale of marine mammal products pending the outcome of aboriginal land claim negotiations, but it implies that people engaging in intersettlement trade in the products of harvests controlled by quotas would not be prosecuted. In practice, fishery officers are expected to exercise discretion and not enforce the regulations in cases of intersettlement trade or small scale local sale to non-natives which does not seem likely to increase the harvest of animals.

REGULATION OF MARINE MAMMAL HARVESTING

The harvesting of marine mammals in the NWT is controlled through five sets of regulations under the Fisheries Act: the Cetacean Protection Regulations, the Beluga Protection Regulations, the Narwhal Protection Regulations, the Walrus Protection Regulations and the Seal Protection Regulations. These regulations contain a wide variety of provisions governing who may harvest, licence requirements, catch limits, quotas, and disposal of products. DFO is developing a consolidated set of marine mammal protection regulations which will standardize many provisions among species.

The Cetacean Protection Regulations govern the harvesting of all cetaceans except narwhal and beluga. An Indian or Inuk may hunt cetaceans other than narwhal, beluga or right whales (e.g. bowhead) without a licence, provided the animals are used for local consumption. There is no provision for quotas or other restrictions on this fishery. Right whales can be harvested only under the authority of a licence; no licence has been issued in recent years.

Under the Beluga Protection Regulations an Indian or Inuk may hunt beluga without a licence. Non-natives may hunt beluga for food for family under the authority of a licence. The regulations provide for the establishment of area quotas. Currently, within the NWT, only the harvest by the settlement of Pangnirtung is limited by a quota. Indians and Inuit may trade or barter, but not sell, parts of beluga within the NWT. Export of beluga products from the NWT is prohibited.

The Narwhal Protection Regulations provide for perhaps the simplest and most effective management regime of all the marine mammal regulations. Narwhal can be hunted only by the possessor of a narwhal tag, which can be issued only to Inuit. Tags are allocated from settlement quotas by local hunter trapper organizations. If the animal taken has a tusk the tag is attached to the tusk which then can be sold or traded. Indians and Inuit can barter or trade, but not sell, other parts of narwhal within the NWT. Export of narwhal products from the NWT, including the tusk, requires a a marine mammal export permit.

The Walrus Protection Regulations are similar to the Beluga Protection Regulations. An Indian or Inuk may hunt walrus without a licence while non-natives must have a licence and can hunt only for food for family and dogs. Individual natives are limited to an annual kill of four walrus. In addition, the regulations provide for area or settlement quotas. Settlement quotas have been established for Arctic Bay, Clyde River, Coral Harbour, and Sanikiluaq. In-

dians and Inuit may trade or barter, but not sell, walrus meat within the NWT. Any person may trade, barter or sell walrus hides or tusks but must obtain a permit prior to transporting these items from the NWT. There is no provision for transporting walrus meat from the NWT. Records must be kept of all transactions taking place within the NWT involving the sale, trade or barter of walrus products. A copy of these records must be provided to a fishery officer upon request.

Under the Seal Protection Regulations, a native or non-native resident of the NWT may kill seals for food for family or dogs without a licence. Sport sealing licences may be issued to non-residents who employ a native guide. The regulations provide for the establishment of seasons and quotas; no closed seasons or quotas have been established in the NWT. Seal meat may be sold or traded only to a resident or traveller who requires food for himself or his dog. There are no restrictions on the sale or movement of seal pelts.

NATIVE COMPREHENSIVE LAND CLAIMS

With the exception of the Dene occupying the southern end of the Mackenzie Valley, the native people of the NWT have not surrendered aboriginal title to the land through treaty. During the 1970's, the Government of Canada instituted the comprehensive land claim negotiation process to translate aboriginal title into specific rights to land, resources, and participation in land and resource management. Within the NWT, three groups have found their claims accepted for negotiation: the Western Arctic Inuvialuit (COPE), the Eastern Arctic Inuit (TFN) and the Dene and Metís of the Mackenzie Valley. The Western Arctic claim was settled in 1984. Negotiations are proceeding on the remaining two claims.

Legislation implementing the Final Agreement on the Western Arctic land claim was proclaimed in July, 1984 (DIAND 1984). The agreement gives the Inuvialuit first priority of access to all marine mammal resources, for all purposes. The agreement empowers a Fisheries Joint Management Committee consisting of equal numbers of Inuvialuit and government nominees to make recommendations on total allowable harvest levels and Inuvialuit harvest levels for marine mammals in the Western Arctic, to collect data on the Inuvialuit harvest of fishery resources, and to advise the Minister of Fisheries and Oceans on the management of fishery resources within the claim area. The agreement also gives the Inuvialuit the right to sell fish and marine mammals products acquired in subsistence fisheries to other Inuvialuit and to sell the non-edible by-products of these fisheries to any person.

Similar provisions likely will be included in the Eastern Arctic settlement and in the settlement of the claim of the Dene and Metis of the Mackenzie Valley, which are currently under negotiation. The government has undertaken to consult with native groups before making any changes in the wildlife management regime within these claim areas which would restrict native wildlife harvesting.

THE INTERNATIONAL WHALING COMMISSION

The International Whaling Commission (IWC) was established as the management agency for internationally exploited stocks of large cetaceans by the 1946 International Convention for the Regulation of Whaling (Birnie 1986). Canada withdrew from this convention in 1981, on the grounds that it was no longer a commercial whaling nation with an interest in management of IWC controlled controlled stocks (Dept. of External Affairs 1981). Withdrawal from the convention leaves Canada free to manage independently the harvest of cetaceans within its 200 mile economic zone. Beluga and narwhal never were included under the convention, although the Scientific Committee of the IWC (IWC 1979) recommended in 1979 that these species be brought under the authority of the commission due to international exploitation of many stocks. The IWC will continue to be an important international forum for discussion of Canada's management of these stocks.

The IWC seeks to maintain whale stocks at the Maximum Sustainable Yield Level (MSYL). For baleen whales, the MSYL is assumed to be approximately 60% of the initial stock size. If a stock is estimated to be above the MSYL it generally may be exploited at a level which will reduce the standing stock, moving it towards the MSYL. For stocks which are considered to be at the MSYL, commercial harvests are set at 90% or less of the estimated maximum sustainable yield (MSY) in order to maintain a safety factor. Stocks which are believed to be below the MSYL are to be managed in such a way that the stocks return to MSYL, that is harvest levels are to be less than the replacement yield. Commercial whaling is to cease whenever a stock falls to less than 90% of the MSYL (IWC 1979).

Aboriginal subsistence hunts are given a special preference by the IWC. They are suspended only when a stock has fallen to the level where extinction is a serious risk, a level far below the 90% of MSYL which is the threshold for commercial harvest suspension. Subsistence harvests from stocks which are below the MSYL are set at a level which will allow eventual recovery to the MSYL level, as for commercially harvested stocks. The subsistence harvest allowed from such stocks is set after consideration of a table relating recovery rate to harvest level, supplied by a Scientific Committee, and a report of the needs of the subsistence harvesters, supplied by a sub-committee on Protected Species and Aboriginal Subsistence Whaling (IWC 1979).

During the late 1970's and early 1980's there was increasing criticism of the estimates of recruitment rates, mortality rates, and stock sizes used by the IWC in making management decisions and of the political process used to arrive at decisions (Tillman and Chapman 1981; Friends of the Earth 1978).

The IWC recently has imposed a moratorium on commercial whaling. Aboriginal subsistence whaling still is allowed in some cases such as the harvest of bowhead whale by the Inupiat of Alaska. The stated reason for the moratorium is to allow time for reassessment of the IWC catch limit system in order to ensure ongoing conservation of the resource (IWC 1983). Much of the international political pressure which led to the moratorium came from people and nations who believe that no whale stock can sustain a commercial harvest or that it is immoral to kill whales for commercial purposes. Canada voted against the moratorium at the 1980 IWC meeting on the grounds that there was no scientific basis for a blanket moratorium, and supported continued stock by stock management.

Canada continues to send observers to IWC meetings and to provide harvest statistics and status reports on stocks within its jurisdiction.

THE CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES)

CITES is an international treaty regulating trade in endangered species (Birnie 1986). It was signed in 1973 and has been ratified by Canada. Species falling under the convention are listed on three appendixes. Appendix I of CITES lists species threatened with extinction. Specimens or products of these species can be traded internationally only under the authority of an export permit from the country of export and an import permit from the country of import. Permits are not to be granted for commercial trade. Appendix II of CITES lists species not currently threatened with extinction but which might become so without regulation of trade. An exporter of Appendix II species is required to obtain an export permit from the country of origin. Appendix III lists species which have been identified by parties to the convention as being subject to regulation within their jurisdictions. Parties to the convention are bound to require an export permit from the listing country before allowing importation of specimens or products of these species.

Species may be placed on Appendix I or II by a two-thirds majority vote of party states attending a biennial meeting or responding to postal notification of a proposed schedule amendment. The bowhead whale is currently listed on Appendix I, narwhal is listed on Appendix II, and walrus is listed on Appendix III by all countries, including Canada. Seal species from the Canadian Arctic are not listed under CITES. At the 1985 biennial meeting a proposal to place narwhal on Appendix I was narrowly defeated. This proposal was strongly opposed by Canada because this species was not in danger of extinction. The placement of narwhal on Appendix I would eliminate international commercial trade in narwhal ivory.

INTERNATIONAL PUBLIC OPINION

Conservationists and animal rights activists represent a powerful lobby against the commercial exploitation of wildlife populations (Malouf 1986). This lobby is particularly strong in many European countries. Many groups support the banning of all harvesting of wildlife species while others are concerned only with inhumane harvesting, harvesting for luxury markets, harvesting of species which are perceived to be threatened with extinction, or harvesting of particular species with high aesthetic appeal. Campaigns by these groups have lead to the banning of the importation of harp seal and narwhal products by the European Economic Community. A strong but unsuccessful campaign was launched for the banning of all Canadian fishery products until the east coast harp seal pup harvest was ended (Malouf 1986). Most European groups support native domestic harvests and many support commercial harvests which help to maintain aboriginal lifestyles. International conservationists and animal rights activists still represent a potent and unpredictable anti-harvesting force which can affect international trade and orchestrate international pressure for changes in internal management of species.

ISSUES

POLICY

Safe harvesting levels

Safe harvesting levels (SHL) have not been established for all harvested stocks. Where SHL have been established they generally have been set at the replacement yield for the current stock size. Clear policy statements are needed on the circumstances, basis, and procedures for establishment of SHL.

Allocation and licensing

There is no allocation or licensing system applying to native subsistence harvesting of marine mammal species except for narwhal and bowhead whale. Native groups are generally opposed to these measures. Resource managers consider them to be useful or, where harvesting demand exceeds the SHL, necessary management tools.

Sale of products

Native organizations have shown increasing interest in the sale of marine mammal food products between native communities (intersettlement trade). The Economic Development Agreement, signed in 1982 by Canada and the Government of the Northwest Territories, emphasizes the development of renewable resources including the encouragement of this trade (DIAND 1988).

In 1984 the terms of reference of the Special ARDA (Arctic Regional Development Agreement) program were rewritten with greater emphasis on renewable resource development (DIAND 1988). Native development corporations, with mandates to foster native opportunity and participation in economic development activities, also are considering renewable resource development for investment of monies received from land claim settlements.

In addition to requesting trade between native communities, native organizations have requested that they be allowed to sell small quantities of marine mammal products to non-natives through local co-operative stores and to sell meat and blubber to non-natives for use as dog food.

A request for the legalization of the sale of marine mammal products was contained in a 1980 letter from the president of the Inuit Development Corporation to the then Minister for Fisheries and Oceans, Romeo Leblanc. DFO continues to receive requests from Inuit organizations for the legalization of the sale of marine mammal products.

Inuit also sell the non-edible parts of marine mammals, particularly seal skins, narwhal tusks, and walrus tusks. This trade is legal and regulated. The rationale for allowing this trade is that non-edible parts are a byproduct of the aboriginal subsistence hunt. Hunting narwhal and walrus for ivory is controlled in part by wastage regulations which dictate that all parts of the animal suitable as food be used. A new development in this area is the development of a process for producing leather from seal skins.

Wastage

Regulations governing the harvest of several marine mammal species forbid wastage of any parts suitable for food. These regulations have proven difficult to enforce and have met with resistance from harvesters because what is considered wastage within the harvesting community is variable, depending on local food habits, availability of alternate foods, and the circumstances of the harvesting.

Harvesting by non-natives

It is likely that applications by non-natives to hunt marine mammals will increase. DFO may receive applications to take animals under a native subsistence quota from non-natives who are supported by local Inuit organizations. These could come from non-native members of native communities or from recreational hunters who have reached an agreement with the native community. Applications also may come from non-natives who do not have the support of the native community. In cases where native subsistence use does not require the entire available resource or where no quota has been set there may be no legal basis for refusing these applications. The issuance of licences to non-natives could cause conflict with native groups which have been managing their fishery on the understanding that they are the sole users of the resources. It would also change the native subsistence character of marine mammal harvesting within the NWT.

Co-management

Native groups have expressed a desire to increase their involvement in the management of marine mammal stocks. In the context of land claims this desire has taken the form of demands for management boards made up of equal numbers of government and native nominees.

International cooperation

Several stocks of marine mammals which are harvested (beluga, narwhal, walrus) or potentially could be harvested (bowhead whale) by Canadians also are utilized by citizens of the United States of America (Alaska) or Denmark (Greenland). No formal agreements exist on the management of these stocks nor on research into their biology.

PROGRAMS

Harvest monitoring

Monitoring of the number of animals taken in subsistence fisheries is necessary for effective management. Although all harvesting of narwhal within the NWT is monitored, monitoring is less complete for beluga and walrus and generally is not undertaken for any species of seal.

Research

Establishment of SHL and other measures to improve conservation and management of marine mammals will require much information on stock identities, stock sizes, population dynamics, and ecosystem dynamics which currently is not available. Resource users have expressed a desire to become more involved in planning and execution of biological research.

DISCUSSION

POLICY

Safe harvesting levels

In the absence of improved management of marine mammals in the NWT, sale of marine mammal products and increased non-native harvesting may lead to dangerously high harvests, conflict between user groups, and international criticism of Canada's management of these animals.

It is extremely important that Canada establish safe harvesting levels (SHL) for all harvested marine mammal stocks on a basis consistent with the most rigorous international conservation standards. The basis for the establishment of SHL must be documented clearly.

The current policy is to set SHL at the current replacement yield for all species except bowhead whale. A zero harvest has been in effect for bowhead whale stocks to allow recovery of stocks. This policy exceeds the IWC conservation standard for stocks which are above MSYL through maintaining larger stocks. However, it does not allow rebuilding of stocks which are below their MSYL, except for bowhead.

The IWC New Management Policy (IWC 1979), which classifies stocks with reference to estimates of MSYL and critical levels and assigns harvest levels on the basis of MSY and replacement or recovery yields, is conceptually attractive. The most questionable aspects of the pol-

icy are the focus on attaining MSY and the availability of information on which to base decisions. MSY is the top of the range of possibly optimum harvests which can be taken while maintaining a stable stock. In many cases the optimum yield will be less than MSY. This may occur for socio-economic reasons, for reasons of uncertainty in the estimate of MSY or for reasons of population or environmental instability.

Few data are available on which to base estimates of MSY, MSYL and even current stock size and replacement yields for Arctic marine mammal stocks. Such estimates therefore have or would have very large confidence intervals. Regardless of this problem it appears that some consideration must be given to habitat carrying capacity, MSYL and MSY when setting SHL for marine mammal stocks. This would move the Canadian management system closer to that of the IWC.

SHL need not be enacted as quotas through regulation. Although legislated quotas would be a useful management tool if supported by the communities, they are likely to be counterproductive if forced upon the communities because of the impossibility of enforcing regulations in remote areas without community support. Northern natives generally are opposed to quotas and are only willing to accept them when the harvest is clearly at or above the replacement yield. SHL may be enforced through cooperation with communities, rather than through a quota set by regulation. The record of northern harvester organizations in cooperating on the management of harvests is excellent. Land claim negotiations in the Eastern Arctic and the early stage of implementation of the Western Arctic claim are also reasons for avoiding regulation of harvests at this time. Quotas should be imposed only where there is real risk of the unregulated harvest depressing stock sizes below acceptable levels.

Allocation and licensing

Except for narwhal, no formal allocation of the right to harvest is made. This informal system has been possible because many stocks have been able to supply existing demands for harvesting and because the harvest has been limited to one group, the native subsistence harvesters. The tendency has been to preserve the status quo through voluntary restraint on the part of subsistence harvesters and restrictions on the sale of marine mammal products.

As the harvest from stocks approaches the SHL and the purposes and community membership of marine mammal harvesters become more diverse, there will be greater need for a formal allocation system to divide the available resource among potential users. Allocational decisions could be made on the recommendation of local committees which are representative of all potential users. Local hunter and trapper committees are the existing organizations most closely fitting this description. Allocation of narwhal tags currently is based on the recommendations of local hunter and trapper organizations. When allocations from a single stock must be made to several communities, such allocations could be made on the recommendation of a regional hunter and trapper organization.

A licence system would facilitate compliance with allocation decisions and monitoring of the harvest. Unfortunately, northern natives are opposed to licensing. As with quotas, imposing licences without agreement from clients is likely to be counterproductive. DFO should educate resource users in the advantages of licences and support their introduction through joint user, government advisory or management boards. The tag system established under the Narwhal Protection Regulations is an excellent management tool. These regulations and the system used for allocating the tags could be used as a model for the management of other marine mammal species in the NWT.

Sale of products

Clearly, it is government policy that marine mammals represent a renewable resource which is available for all uses, subject to limitations imposed for the conservation of the resources and allocational priorities. Regulations which do not provide for a commercial harvest and which, to varying degrees, prevent the sale of marine mammal products may result from fear of international reaction to commercialization of the harvest, from the allocational priority given to the traditional native harvest, or from doubts about the ability of the management system to cope with increased demand for opportunities to participate in a diversified harvest.

Fear of international reaction often has been used as a reason for suppressing the sale of products of the subsistence harvests and prohibiting a comercial harvest. The experiences of the east coast sealing industry illustrate the power of international animal welfare and rights interests (Malouf 1986). Commercialization of the NWT marine mammal harvest would entail a risk of these groups mounting a campaign not only against the commercialized harvest, but also against associated and even unrelated subsistence harvests. Strategy on this question could be developed through consultation between DFO and the community of users who may be affected by international actions. DFO's response to external pressures should be to ensure that management of the resource conforms to or exceeds international standards for conservation and to communicate the existence of these management efforts to the international community.

The priority given to the maintenance of the traditional harvest gives rise to two arguments against sale of marine mammal products: that it is unfair to allocate the resource to natives for the maintenance of their culture only to have them use it for economic gain, and that allowing sale will divert resources needed to maintain traditional life styles. The first argument is based on the principle that, aside from recognition of special cultural needs, traditional use and specific rights granted by treaty or land claim settlement, natives should compete equally with other Canadians for access to the resource. This argument has little application to marine mammals. The aboriginal

harvest already utilizes virtually the entire available resource and generally only byproducts of the harvest would be sold. The Inuvialuit Final Agreement guarantees the Inuvialuit first priority of access to marine mammal resources for all purposes.

Fear that commercialization of the harvest would affect negatively the traditional harvest, through either diverting available resources or increasing the harvest to the point where stocks are reduced, points out weaknesses in the current management system. To date, suppression of certain uses of marine mammal resources has been used as a substitute for comprehensive resource management and allocation systems. While this is supported by some clients who do not wish to see quotas imposed, it has caused conflict between DFO and resource users who want to sell portions of the harvest. The proper course is to develop the management system necessary to control the harvest. Control systems necessary for ensuring conservation should be developed through consultation with the resource user in order to minimize inconvenience and to develop user understanding and support.

Allowing sale of marine mammal products might increase the value obtained from the animals harvested through using currently utilized products in new ways and through increasing usage of underutilized products. DFO should be open to discussion with its clients on the advantages and disadvantages of sale of marine mammal products, possible methods of allowing trade, and changes in the management regime which must accompany trade.

Client aspirations for sale of marine mammal products could be met by legalization of the sale of edible parts of marine mammals taken in the subsistence harvest or by issuing commercial harvesting licences. Legalizing the sale of products of the subsistence hunt would allow more efficient utilization of animals taken in the harvest. However, it might affect aboriginal subsistence harvests, which already include the sale of seal skins and of narwhal and walrus ivory, by increasing the chance of international protests against all harvesting.

Conversely, issuing commercial licences would isolate sale from the subsistence harvest at the cost of giving commercial activities a very high profile. Commercial licensing would have the advantage of enabling higher allocational priority for strictly traditional subsistence harvests.

Policy on resource use should be reflected in regulations. The current system of relying on fishery officers' discretion for selective enforcement and interpretation of regulations places too much responsibility on enforcement personnel, creates unacceptable uncertainty, and lessens respect for the Fisheries Act and regulations.

Allowing sale of all marine mammal parts would require amendments to the beluga, narwhal, walrus and seal protection regulations.

Harvesting by non-natives

At present, northern natives have a virtual monopoly over the harvesting of marine mammals in the NWT. The regulations provide for licensing of non-natives, but non-native harvesting is discouraged. There would seem to be no reason why non-natives should not be allowed to harvest animals which are surplus to the needs of higher priority users, such as those engaged in the traditional native harvest. However, the informal management systems currently used do not give sufficient assurance that the total harvest would stay within the productive capacity of the stock and that high priority users would retain their current access to the resource. These results could be assured only by adoption of formal quota and allocation systems. Although adoption of more formal management procedures would impose costs on current users of the resource through restricting freedom, there also would be benefits through greater assurance of continued access.

Wastage

The beluga, narwhal and walrus regulations contain sections prohibiting wastage of any parts of these animals suitable for food. These sections present enforcement problems because the phrase 'suitable for food' must be interpreted by local standards. Failure to utilize all of an animal may not be wastage, depending on the circumstances of the kill. These sections do serve a valid purpose in ensuring efficient use of the resource.

An alternative approach would be to consider the record of individuals in utilizing animals when allocations are made. If allocations were made by local committees, community standards would be applied. Due to the problems with enforcing wastage regulations, this approach probably is preferable.

Co-management

Co-management is a poorly defined term which generally refers to participation by resource harvesters in resource management. Although demands for increase participation in the management process are being voiced by many types of harvesters, the foremost proponent is the native community. The Inuvialuit Final Agreement (DIAND 1984) contains extensive provisions for the establishment of committees which guarantee the Inuvialuit an important role in wildlife and habitat management. Similar provisions certainly will be contained in future land claim settlements.

It will be almost mandatory to involve local native organizations in the establishment of SHL and any quotas for marine mammals and in establishing licensing or registration requirements. It also will be important to involve these organizations in monitoring of the harvest, planning of inventory and survey research and stock assessment.

Management by SHL and specific allocations from the SHL will require the development of fishing plans. Planning and allocation could be

done through recommendations by boards made up of representatives of all affected communities of interest. These boards would work closely with DFO to develop recommendations which would be reviewed and implemented by DFO officials. Such a management board could, through the development of fishery management plans, participate in decisions on all aspects of the management of fisheries within its area.

Although the native interest greatly predominates in marine mammal harvesting, a management board with these broad terms of reference would affect many different communities of interest. It is critical that all affected groups be provided with the opportunity for representation on the board. Providing natives with meaningful involvement in fishery management will require providing the same opportunity to other communities of interest.

The native community could be delegated responsibility for matters which do not affect anyone outside of this community. Examples would be sub-allocation from any native fishery allocation to individuals within the group and administration of a licence or registration system.

DFO is exploring the possibility of a Southeast Baffin beluga management board and increasing consultation with hunter and trapper associations. Also, DFO is participating in the development of co-management through negotiation of the TFN and Dene/Metis land claims and through establishing the Fisheries Joint Management Committee under the Inuvialuit Final Agreement. The Fisheries Joint Management Committee currently is restricted to matters concerning Inuvialuit fisheries. Because the Inuvialuit are given first priority to the use of marine mammal resources by the Inuvialuit Final Agreement this includes recommending harvestable quotas for marine mammals.

In conclusion, DFO should seek to improve communication and consultation with native organizations on all aspects of the management of marine mammals within the NWT. While some issues related to co-management of fisheries resources may be resolved only through the comprehensive land claim process, the existence of this process should not be used as an excuse not to pursue a greater role for all user groups in this management.

International cooperation

Management of a marine mammal stock cannot be effective unless management efforts are coordinated throughout the range of the stock. This is particularly true for harvest levels. Canada does not have agreements with the United States of America or Denmark on the management of transboundary stocks of marine mammals. Development of such agreements must be given high priority. Exchange of harvest and other management and scientific information can be used to encourage coordinated management until such agreements are achieved.

Should the Western Arctic stock of bowhead whale reach a level where a Canadian harvest could be considered, and such a harvest is desired, it will be necessary to coordinate this harvest with the IWC.

PROGRAMS

Harvest monitoring

Harvest statistics are collected for all narwhal hunts. Harvest statistics are less complete for beluga and walrus while the harvest of seals is largely unrecorded. The taking of a cetacean other than narwhal and beluga is an extremely rare event.

Harvest monitoring is necessary so that population trends and levels can be associated with harvest levels. Harvest data also can be used to attach a value to the harvest so that the level of management effort can be matched to its importance or compensation can be assessed for loss of harvests due to environmental damage. DFO should work with native organizations to achieve comprehensive reporting of all marine mammal harvests within the NWT.

In order to detect and prevent sale and trade in illegally harvested animals, it may be necessary to retain or strengthen requirements for record keeping and for permits for movement of products between provinces and territories. Record keeping requirements should be drafted carefully to exempt small scale barter and gifts, particularly of food products. An alternative might be a requirement that certain products be tagged so as to identify their source, as with the narwhal tag. It also would be possible to institute a permit system for the transportation of products between communities within a province or territory. Attempts to indirectly control transportation of products through definition of areas in which trade will be allowed, as has been done in the Beluga Protection Regulations, should be avoided since they are uncertain and ultra vires the Government of Canada when applied to intra-provincial trade.

Research

In order to establish SHL, information will be required on the ranges of marine mammal stocks, historical and current stock sizes, historical and current harvests, and reproductive, growth and natural mortality rates for these marine mammal species. Effective management of these stocks also will require information on their place in Arctic ecosystems. Although some of this information is available, much more will be necessary to ensure both conservation of stocks and the greatest possible fulfillment of human needs and aspirations for the use of marine mammals and other natural resources.

DFO should identify research methods for obtaining this information. Planning for the application of these methods to obtaining information on particular stocks should be done through consultation with resource users to ensure that priorities are responsive to their needs and aspirations for resource use.

CONCLUSIONS

Analysis of Government policy, client aspirations and principles of natural resource management suggests that DFO should consult with its clients on moving away from regulation of the use and disposal of the products of marine mammal harvests in the NWT and Yukon North Slope to management through safe harvesting levels (SHL) and formal allocation systems.

Diversification of the purposes and community memberships of harvesters should be accompanied by strengthening of the management regime. Management regime changes will be necessary to ensure continuing conservation of the resource, to protect the traditional harvest and to reassure external observers.

RECOMMENDATIONS

1. Safe harvesting levels (SHL) should be established for all harvested stocks. When setting SHL, habitat carry capacity as indicated by historical stock sizes and ranges must be considered in addition to current replacement yields so that depressed stocks will be allowed to recover. Socio-economic factors also should be considered when setting SHL, but should not be used to justify setting SHL above MSY, preventing recovery of stocks depressed below the MSYL, or setting harvest levels which endanger a stock in any way. An SHL should be established as a regulatory quota only where this is supported by the local community of harvesters or where there is a real possibility that the harvest will exceed the SHL, and only after consultation with the harvesters.

2. A more formal method of allocating the right to harvest marine mammals should be discussed with clients. Allocations could be based on the recommendations of regional and local hunter, trapper organizations or of bodies established under land claim settlements, where appropriate. The use for all marine mammal species of the quota, tag and allocational systems currently used for narwhal should be promoted.

3. The wastage sections contained in the beluga, narwhal and walrus protection regulations may be removed where a formal allocation system has been established. The purpose for which harvesters intend to harvest should be considered during the allocational process.

4. All marine mammal harvests should be carefully monitored in cooperation with local resource harvester organizations. DFO should consider the introduction of regulations requiring the keeping of records on the trading of marine mammal products or the identification of these products as to source for all species. The interprovincial, and possibly inter-settlement, transportation of marine mammal products should be regulated through a permit system.

5. DFO should seek to establish management boards consisting of representatives of all concerned communities of interest. These boards would make recommendations on all aspects of marine mammal management. Recommendations generally would be made through development of stock management plans. Boards or committees established through the settlement of native land claims may assume these responsibilities.

6. DFO should increase education and consultation programs in order to acquaint resource users with the basis on which SHL are established and to promote the use of quotas and licence systems as management tools.

7. Canada should continue to present status reports on harvested species to international bodies, such as the IWC, and at CITES meetings. Canada should seek bilateral agreements with the United States and Greenland on the management of marine mammal stocks which are harvested by those countries as well as by Canada.

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